

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

156. (Currently Amended) An isolated nucleic acid encoding a chimeric G protein, wherein the chimeric G protein comprises an invertebrate Gαq G protein from which at least five, but not more than twenty-one, contiguous amino acids beginning with the C-terminal amino acid have been deleted and replaced by a number of contiguous amino acids present in a vertebrate G protein beginning with the C-terminal amino acid of such vertebrate G protein, wherein such number equals the number of amino acids deleted; provided that upon activation the chimeric G protein produces a Gαq second messenger response comprising release of inositol phosphate, release of intracellular calcium or calcium mobilization; wherein the invertebrate Gαq G protein is a Caenorhabditis elegans, Drosophila melanogaster, Limulus polyphemus, Patinopecten yessoensis, Loligo forbesi, Homarus americanus, Lymnaea stagnalis, Geodia cydonium, or Dictyostelium discoideum Gαq G protein, and the vertebrate G protein is a mammalian Gαz, Gαs, Gαi3, Gαi1, Gαi2, GαoA, or GαoB G protein.

157. (Previously Presented) The nucleic acid of claim 156, wherein the nucleic acid is DNA.

158. (Previously Presented) The DNA of claim 157, wherein the DNA

is cDNA.

159. (Canceled)

160. (Previously Presented) The nucleic acid of claim 156, wherein the nucleic acid is RNA.

161. (Previously Presented) The nucleic acid of claim 156, wherein the vertebrate G protein is a mammalian G protein.

162. (Previously Presented) The nucleic acid of claim 156, wherein the contiguous amino acids which have been deleted are contained in FVFAAVKDTILQHNLKEYNLV* (SEQ ID NO: 37), wherein V* is the C-terminal amino acid.

163. (Previously Presented) The nucleic acid of claim 156, wherein the vertebrate G protein is a vertebrate G α z G protein.

164. (Previously Presented) The nucleic acid of claim 163, wherein the number of contiguous amino acids which have replaced the deleted amino acids are contained in FVFDAVTDVIIQNNLKYIGLC* (SEQ ID NO: 38), wherein C* is the C-terminal amino acid.

165. (Previously Presented) The nucleic acid of claim 163, wherein the invertebrate G α q G protein has five contiguous amino acids beginning with the C-terminal amino acid which have been deleted and replaced by five contiguous amino acids beginning with the C-terminal amino acid of a vertebrate G α z protein.

166. (Previously Presented) The nucleic acid of claim 156, wherein the vertebrate G protein is a vertebrate G α s G protein.

167. (Previously Presented) The nucleic acid of claim 166, wherein the number of contiguous amino acids which have replaced the deleted amino acids are contained in RVFNDCRDIIQRMHLRQYELL* (SEQ ID NO: 39), wherein L* is the C-terminal amino acid.

168. (Previously Presented) The nucleic acid of claim 166, wherein the invertebrate G α q G protein has nine contiguous amino acids beginning with the C-terminal amino acid which have been deleted and replaced by nine contiguous amino acids beginning with the C-terminal amino acid of the vertebrate G α s protein.

169. (Previously Presented) The nucleic acid of claim 156, wherein the vertebrate G protein is a vertebrate G α i3 G protein.

170. (Previously Presented) The nucleic acid of claim 169, wherein the number of contiguous amino acids which have replaced the deleted amino acids are contained in FVFDAVTDVIIKNNLKECGLY* (SEQ ID NO: 40), wherein Y* is the C-terminal amino acid.

171. (Previously Presented) The nucleic acid of claim 169, wherein the invertebrate G α q G protein has five contiguous amino acids beginning with the C-terminal amino acid which have been deleted and replaced by five contiguous amino acids beginning with the C-terminal amino acid of the vertebrate G α i3 G protein.

172. (Previously Presented) The nucleic acid of claim 156, wherein the vertebrate G protein is a vertebrate G α i1 G protein, a vertebrate G α i2 G protein, a vertebrate G α oA G protein, or a vertebrate G α oB G protein.

173. (Previously Presented) The nucleic acid of claim 156, wherein the invertebrate G α q G protein is a *Caenorhabditis elegans* G α q G protein.

174. (Previously Presented) The nucleic acid of claim 156, wherein the invertebrate G α q G protein is a *Drosophila melanogaster* G α q G protein, a *Limulus polyphemus* G α q G protein, a *Patinopecten yessoensis* G α q G protein, a *Loligo forbesi* G α q G protein, a *Homarus americanus* G α q G protein, a *Lymnaea stagnalis* G α q G protein, a *Geodia cydonium* G α q G protein, or a *Dictyostelium discoideum* G α ₄ G protein.

175. (Previously Presented) The nucleic acid of claim 156, wherein the chimeric G protein has an amino acid sequence shown in (a) Figure 2, C. elegans G α _{q/z5} (SEQ ID NO: 1); (b) Figure 2, C. elegans G α _{q/z9} (SEQ ID NO: 2); (c) Figure 2, C. elegans G α _{q/s9} (SEQ ID NO: 3); (d) Figure 2, C. elegans G α _{q/s21} (SEQ ID NO: 4); (e) Figure 2, C. elegans G α _{q/i3(5)} (SEQ ID NO: 5); or (f) Figure 2, D. melanogaster G α _{q/z5} (SEQ ID NO: 41).

176. (Previously Presented) The nucleic acid of claim 156, wherein the G α q second messenger response comprises release of inositol phosphate.

177. (Previously Presented) The nucleic acid of claim 156, wherein the $G\alpha_q$ second messenger response comprises release of intracellular calcium or calcium mobilization.

178. (Previously Presented) The nucleic acid of claim 156, wherein the $G\alpha_q$ second messenger response comprises calcium mobilization.

179. (Previously Presented) A vector comprising the nucleic acid of claim 156.

180. (Previously Presented) A vector of claim 179 adapted for expression in a cell which comprises the regulatory elements necessary for expression of the nucleic acid in the cell operatively linked to the nucleic acid encoding the chimeric G protein so as to permit expression thereof, wherein the cell is a bacterial, amphibian, yeast, insect, or mammalian cell.

181. (Previously Presented) The vector of claim 180, wherein the vector is a plasmid, a baculovirus, or a retrovirus.

182. (Previously Presented) A cell comprising the vector of claim 179, wherein the cell comprises DNA encoding a mammalian G protein-coupled receptor.

183. (Previously Presented) A cell of claim 182, wherein the DNA encoding the mammalian G protein-coupled receptor is endogenous to the cell.